

CHINQUAPIN

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Trillium Tales: Plants, Places, and People

By L. L. Gaddy, President – *terra incognita*

The genus *Trillium* contains over 50 species: five or six in Asia, seven in western North America, and over 40 in eastern North America. Trilliums are liliaceous plants, formerly placed in the lily family (Liliaceae), but now considered part of the Melanthiaceae. They are herbaceous, have three leaves (or bracts), three sepals, and three petals (Fig. 1). Taxonomists divide the genus into the pedicellate and the sessile trilliums (the latter group is called the “toadshades”); the flowers of the pedicellate trillium have stems (pedicels), while in the sessile trillium, the flowers sit stemless in the center of the three leaves.



Figure 1. *Trillium discolor*

The first time I ever saw a trillium was in late February of 1976. An old mountain man had told me and a friend that there was a nice waterfall west of Oconee Station (an Indian trading post and the oldest

building in Oconee County, South Carolina), and that there were lots of wildflowers in the cove below the falls. I walked the cove up to the falls; he was right. There were numerous large trillium colonies in the cove, some already in bloom. They were abundant in the bottom of the rich cove below the falls and covered its slopes. Some had maroon flowers, while other plants had greenish-yellow flowers. The trillium in question was *Trillium cuneatum*, little sweet betsy. Colonies of this trillium are still enjoyed in Station Cove by hikers in late winter and early spring; Station Falls and Cove is now a special botanical area protected by the U. S. Forest Service.

The northwestern corner of South Carolina, where I had settled in 1979, and adjacent Georgia and North Carolina have an abundance of trillium species and trillium coves. In the early 1980s, I was lucky enough to meet John and Edna Garst, two wildflower enthusiasts who had found a strange little trillium in Battle Creek in South Carolina, just below Tallulah Gorge. They had a cabin on Lake Yonah (locally pronounced Yoner). From there they often canoed to the coves and ravines around this Georgia Power-owned lake. One day they

had happened upon a very small, early-flowering pedicellate trillium (most pedicellate trillium are large) along Battle Creek, which flowed into the lake. It wasn't in the wildflower books, so they took it to Dr. Wilbur Duncan, professor of botany at the University of Georgia in Athens, where John was professor of chemistry. Dr. Duncan vaguely remembered seeing the plant earlier in Tallulah Gorge. Well, it was also found there, but not in many other places. As it turned out, it was a narrow endemic found only in the Tallulah Gorge area in Georgia and South Carolina. He named it *Trillium persistens* (persistent or Edna's trillium). It is now listed as endangered by the U. S. Fish and Wildlife Service because of its rarity and narrow range.

The late John D. Freeman of Auburn University spent his career studying the toadshades. He documented the range and taxonomy of the 20 or so known toadshades and described several new species in his dissertation (done at Vanderbilt), including the rare and now federally-listed relict trillium (*Trillium reliquum*). I had the pleasure of spending a week in the field with him along the Blue Ridge escarpment one April in the 1980s. We happily trekked from trillium cove to trillium cove, oblivious to the world outside of our narrow purview. We probably saw ten species of trillium that week. We stayed at my log cabin near Walhalla and had long discussions of trilliums and trillium ecology at night.

One of the sessile trilliums we saw on our excursions was faded trillium (*Trillium discolor* – see Fig. 1), which is endemic to the upper Savannah River drainage. It ranges from Whitewater Falls in North Carolina to just north of Augusta where it occurs in Georgia and South Carolina. Its lemon-scented flower emerges later than most of the other sessile trilliums in mid-April. It is scattered throughout the Blue Ridge front and in the Piedmont, but it forms large, spectacular colonies in spring along Cane Creek in Pickens County and on the Chauga River in Oconee County.

Another interesting and beautiful trillium of the North Carolina-South Carolina-Georgia corner is Vasey's trillium (*Trillium vaseyi*). This plant is often over a foot tall and has giant flowers that hide under its leaves (Fig. 2). It is common around Highlands, North Carolina, along the Chattooga River, and around Toccoa Falls in Georgia, where its maroon flowers are nearly the size of the palm of an adult's hand. This species was named by T. G. Harbison, a well-known Highlands botanist, who also worked at the Biltmore Herbarium (now defunct) in Asheville and at the University of North Carolina Herbarium in Chapel Hill.

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**From The Editor's Desk:****Joe Pollard, Newsletter Editor**

Abject failure. Only two issues of *Chinquapin* were published in 2018, instead of the four issues that should have come out. Several SABS friends have asked if I'm okay. Thanks for your concern, but I'm fine. There were several reasons for the delay. My fall semester turned out to be exceptionally busy, and my time-management skills (never my strong suit) were rusty after a 14-month sabbatical with very few deadlines. I had forgotten how much I love my job, but also how demanding it can be. To make matters worse, just before completing a *Chinquapin* issue last November, my computer crashed. I had back-ups of everything else, but I had to re-create the current issue essentially from scratch.

I'm sorry for the delay, but I realize that I tend to apologize a lot in this column. If any readers are really upset by those missing issues, here's a challenge – you can volunteer to be the next

editor! I've got a couple more years in my term, during which I can show you the ropes. If any readers are interested, please contact me or any of the officers listed on this page. If that doesn't work for you, please consider contributing an article. The hardest part of being editor is finding articles. To my regular contributors, I appreciate you more than you know!

Speaking of regular contributors, I'm delighted to report that L.L. ("Chick") Gaddy has agreed to contribute articles on a fairly regular basis. Chick is the author of 8 books on natural history, and has a wealth of experience in southern Appalachian botany. Last year we ran a fascinating story he wrote about looking for *Shortia* in China and Vietnam. This issue kicks off with an excellent summary of his long experience with the beautiful but confusing species of *Trillium*. That seems particularly timely as we emerge from another winter into the glory that is spring in the southern Appalachians. I hope you can all get out and enjoy some botany!

DUES REMINDER

A lot of SABS members are late in renewing their membership. Members who have not renewed by 1 May 2019 will no longer be able to access *Castanea* online. Those who receive hard-copies by mail will find their subscription interrupted, and we can't guarantee that extra copies will be available.

There are new renewal procedures due to the website changes explained in the next article. If you want to renew online, go to the new *Castanea* website, <https://castaneajournal.org>. Log in, then choose My Account > Subscriptions > Renew. If you can't log in, it might be because lapsed memberships were not transferred from Allen Press to the new website. In that case, you may need to re-join. That's also easy to do on the new website. If you need help, contact our membership secretary, Mike Held (mheld@saintpeters.edu).

***Castanea* in 2019: A New Publishing Model**

By Chris Randle, Pum Grubbs, Charlie Horn, Brian Keener, and Joe Pollard

The Southern Appalachian Botanical Society and its journal *Castanea* have been associated with Allen Press for over 30 years, at first contracting with them for printing needs. Over the years our reliance on Allen Press has grown. Since 2011, Allen Press has overseen nearly every aspect of the publication process, from online manuscript handling, to typesetting, copyediting, printing, mailing, and handling institutional subscriptions. In general, our relationship with Allen Press has been beneficial, and has allowed us to produce a high-quality product that reflects the research interests of the society. Unfortunately, in 2017 and again in 2018, the cost of producing *Castanea* with Allen Press increased dramatically. At the 2019 fall business meeting in Rock Hill, SC, the SABS council decided that publishing with Allen Press had become financially unsustainable, and that we needed to find another way.

In devising a new publishing model, there were many factors to consider. How would authors submit papers, and how would these be distributed to subject editors and reviewers? How were manuscripts to be typeset? How would issues be printed and mailed? Would the society continue to host *Castanea* online, and if so, how would member and institutional access be managed? Some questions were less obvious, but as important. How do we maintain our relationship

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Trillium Tales *continued from p. 1*



Figure 2. Giant flower of *Trillium vaseyi*,
Toccoa Falls, GA

In the mid-1980s, while I was on a research grant at the University of Tennessee, I met Tom Patrick, a student who was doing his Ph.D. on the large pedicellate trilliums, sometimes called the “*Erectum* complex.” This group contains some of the grand beauties of the genus—large erect trillium (*Trillium erectum* – Fig. 3), sweet white trillium (*Trillium*

simile), bent trillium (*Trillium flexipes*), southern nodding trillium (*Trillium rugelii*), nodding trillium (*Trillium cernuum*), Barksdale’s trillium (*Trillium sulcatum*), which Tom had described as a new species, and the aforementioned Vasey’s trillium (*Trillium vaseyi*). Tom had taken on this difficult group and had even designed a smell key to the flowers of the species (e. g., erect trillium always smells like “wet dog,” etc.). Because of hybridization and poorly-defined species boundaries, this group is one of the most taxonomically difficult in the genus. Some taxonomists doubt if all the species in this group are distinct. When I asked a botanist in the Northeast whether it was *Trillium erectum* or

Trillium flexipes that grew en masse in a famous Pennsylvania cove, she replied, “Half of the trillium experts who go there say it’s *erectum*, the other half say *flexipes*.” And, finally, the worst case taxonomic scenario for this group is summarized in the last line of the abstract of a thesis (by a perplexed graduate student who attempted to figure



Figure 3. *Trillium erectum*,
Blue Ridge Parkway, NC

out the taxonomy of the group): “The *Erectum* complex taxa appear to be sets of hybridizing groups in states of incomplete speciation.” (Tom suggested that a more accurate description of what is going on in the *Erectum* group may be “incipient speciation in progress.”) Either way, it’s a taxonomic nightmare.

Probably the most biogeographically bizarre of the North American trillium is the least trillium (*Trillium pusillum*) and its varieties. Least trillium is a small, pedicellate trillium that was first described from the Atlantic Coastal Plain, but its related six or so varieties (or species to some taxonomists) are found widely scattered through the southeastern United States. Susan Farmer has led the studies of the morphology and molecular biology of this species complex, and has developed

fascinating maps of the genetic relationships between the known species. She has already published several new species, with even more awaiting publication

One spring day in the 1980s I was looking for orchids in the Tennessee River drainage of North Carolina and was on the property of John Sill, a mountain artist/naturalist. While he was giving me directions, the subject of trillium came up. He mentioned he had seen some persistent trillium on the Nantahala River; I stopped him and pointed out that it had never been found outside of the Tallulah River drainage (which drains into the Savannah and the Atlantic proper). He quickly said, “Well, I have some in my wildflower bed!” I walked over and took a look—it was least trillium (*Trillium pusillum*), a species that had not been reported from the mountains of North Carolina since the late 1800s. He gave me good directions to the site where he had found it, and I confirmed that the population was indeed the first seen in the mountains of North Carolina in nearly 100 years—this population is nearly 100 km from the closest other known population of *Trillium pusillum*. It is probably a new species (Fig. 4) and will one day join the other new species of the *Trillium pusillum* complex.

In the early 2000s I was in the floodplain of the Wateree River, just barely in the Coastal Plain of South Carolina—not a place where one would think of finding trillium. As I drove along the rich banks of Big Pine Tree Creek, which flowed into the Wateree just south of Interstate 20, I saw several tall yellow-flowered plants out of the corner of my eye. I jumped out and ran over to check them out; they were toadshades but I had never seen anything like them. I sent images to several trillium experts, who all agreed that these plants were different from other toadshades. After a few years of research, I concluded that the



Figure 4. *Trillium pusillum*
in the mountains of North Carolina

plant was a new species. I, however, hadn’t been the first to see it. It was originally collected by H. J. Oosting of Duke University in 1937! He and others thought it to be an existing species and it ended up being called lance-leaved trillium (*Trillium lancifolium*), which is known from the Savannah drainage in South Carolina. With my morphological data, genetic data from Susan Farmer, and Gerald Moore’s excellent chromosomal images, it was determined that the Wateree trillium or *Trillium oostingii*, as I decided to call it, was distinct from lance-leaved trillium and was more closely related to prairie trillium (*Trillium recurvatum*), a mid-Western Mississippi drainage trillium, than to *Trillium lancifolium*. A few years later, a Wateree trillium look-alike was found in the Ridge and Valley of Tennessee. Ed Schilling, Aaron Floden, and Susan Farmer (all associated with the University of Tennessee in Knoxville) called it *Trillium tennesseense*. It was closely related to *Trillium oostingii*, but in the end, because of genetic differences, they determined it to be a new species.

Trillium Tales *continued from p. 3*



Figure 5. *Trillium oostingii* near the Wateree River, SC

My interest in trillium has led me to interesting species, places, and people. Harold Holmes of the Huntsville Botanical Garden, retired nuclear physicist from the Redstone Arsenal, pursues Alabama trillium with great

vigor every spring. He told me that when he took early retirement he had said he wanted to study “trillium.” His boss, also a nuclear physicist, replied, “Well, Harold, if you want to study Tritium, we may be able to get you a position at the Savannah River Site.” Harold replied, “*Trillium*, a genus of wildflowers, not Tritium.”

In the last few years, my winding trillium trail led me to be a visiting consultant at the Mount Cuba Center in Hockessin, Delaware, a private garden—formerly owned by the DuPont Family—that harbors

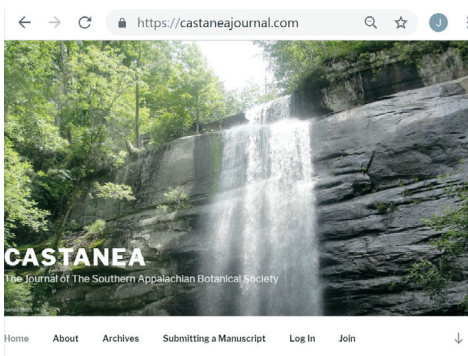
what is probably the best “captive” collection of trillium in the world. I was lucky enough to work with their curator, Ms. Amy Highland (and the rest of their excellent staff), to try and sort out the species and varieties in their vast collection. Mt. Cuba is open to the public and has trillium education program emphasizing the genus’ ecological niche in eastern North America.

This past spring, before the leaves came out, I was driving down U. S. Highway 221 in North Carolina. It was almost dark as I made my way southward along the headwaters of the Broad River. In a flash of light, I saw white in the understory of a steep river bluff to my right. I pulled over quickly, surmising that the white was from the flowers of a large colony of trillium in flower. It was too dark then to cross the river and climb the bluff, but a week later when I returned, I forded the river and climbed up the bluff to find about three acres of giant, beautiful sweet white trillium (*Trillium simile*) on the slope. And so it goes....

(To peruse an excellent image overview of the *Trillium* of the southeastern United States, go to https://www.flickr.com/people/alan_cressler/ and select his “Trillium Species of the Southeastern U. S.” album. There are 199 high-quality photographs to view.)

L. L. Gaddy is president of terra incognita (www.tibooks.org/) and can be contacted at llgaddy2@gmail

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with aggregators like BioOne and JSTOR? How do we handle institutional subscriptions purchased through third parties?

Fortunately, there are many more tools available for a DIY model of publication available than there

were even a few years ago, and we believe that the model that we have chosen will not only allow SABS to continue producing *Castanea* as it has since 1936, but will improve our ability to move papers through review quickly without sacrificing rigor, and increase our visibility in the broader world of botanical publishing.

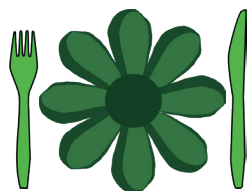
Manuscripts can be submitted through a service called Scholastica at a cost to the society of \$500 per year. Scholastica implements tools that allow easy communication between editors, subject, editors, authors, and reviewers from submission through final decision; while maintaining security of submitted materials. It automates tasks like sending email notifications when reviews become due, when editor and subject editor tasks are generated, and when revisions have been resubmitted.

We were fortunate to retain the services of a professional typesetter, Becky Horn, who has more than passing familiarity with botanical journals, having served as typesetter for *Sida / The Journal of the Botanical Research Institute of Texas* for more than 30 years. We have worked with Becky to modernize the journal’s style while maintaining an aesthetic familiar to our readership.

Realizing that the printed journal is an important product for many SABS members, we requested quotes from printers, ultimately choosing Sheridan, the company that printed and distributed the *American Journal of Botany* until that journal went to an online only publication model.

The lynch-pin of our model is the new *Castanea* website (castaneajournal.com). We have contracted web-designer Briggs Armstrong, a southern Appalachian botany enthusiast, to design the new site. Briggs has worked closely with SABS council to design a site to service this new model. First, the site hosts archives of our publications, *Chinquapin*, *Castanea*, and *Occasional Papers in Eastern Botany*. Simultaneously, it serves as a tool for membership management. One can join SABS or renew at the site, and make payments electronically. Further, only members can log into the site to access the journal, conserving revenue for the society. We are now in the process of creating a means for institutions, aggregators, and third party subscription services to obtain subscriptions, and we believe those options will be available soon. Briggs is also working to remodel the SABS web-site, to provide additional services to members and to reach a broader community of plant naturalists.

In presenting this new model, we do not want to paint too rosy a picture. Each of these changes has been fraught with challenges, some of which served to inconvenience SABS members, authors, and readers. Many difficult decisions have been made. All of us have entered new territory in our experience of publishing, and this has been both frightening and exciting. However, we have been encouraged by the overall goodwill of those who read and publish in *Castanea*. Review of manuscripts submitted before the transition was handled primarily by email, presenting an organizational challenge to all involved. Nonetheless, our subject editors handled this challenge efficiently, and our authors with forbearance. Currently, eight manuscripts have been approved for online publication, and ten others are in process. We anticipate that the May issue will be both fat and delivered on-time. We thank all of you for your patience in this time of transition and look forward to many more years of publishing *Castanea*.



Edible Wild Plants: Out of Africa: News of Surprising Edible Plants

by Lytton John Musselman, Department of Biological Sciences,
Old Dominion University

I was an invited speaker at the Symposium on Improving Nutrition in Dryland Areas held in Arusha, Tanzania not far from Mount Kilimanjaro. The purpose of the meeting was to encourage the cultivation of “nutrient dense” vegetables for small holder farmers using indigenous plants or plants easily cultivated in dry African agroecosystems.

Imagine my surprise at this meeting to learn that one of the most nutrient dense crops is *Cnidoscolus aconitifolius* (Euphorbiaceae) (Fig. 1) best known in English and Kiswahili as “Chaya,” the name used in its place of origin, Central America. In the southeastern United States we have two species of the genus: *C. stimulosus*, an herbaceous perennial widespread in sandy sites in the Coastal Plain, and the similar

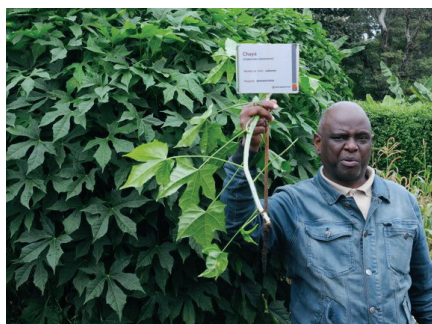


Figure 1. *Cnidoscolus aconitifolius* at the World Vegetable Center, Arusha, Tanzania. Charles Bonaventure of ECHO is demonstrating a shoot that can be used for propagation of the shrub.

but more robust *C. texanus*, with a more western distribution. Understandably, these American plants are overlooked as food because of the presence of stinging hairs and because of well-known toxic relatives such as castor bean (*Ricinus communis*). The cultivated variety of Chaya lacks stinging hairs. (The introduced

stinging nettle, *Urtica dioica*, also has stinging hairs yet is widely known for its succulent young plants, disarmed and delicious when boiled.)

So I boiled leaves of *C. stimulosus* (Fig. 2) in a stainless steel pan (cooking releases and breaks down cyanide which can react with aluminum) and as a precaution poured off the water and re-boiled with fresh water. (Thanks to Nick Flanders and Lauren Heyd for gingerly collecting the leaves.) The taste and texture were pleasant and if the leaves are poison, it is a slow poison. The nutrition of this plant, known as bull nettle, has not been analyzed. Chaya, on the other hand, has one of the highest concentration of calcium, iron, protein, and vitamins of any introduced green that is grown in Tanzania. But a native vegetable has even better nutrition.



Figure 2: *Cnidoscolus stimulosus*, Blackwater Ecological Preserve, Isle of Wight County, Virginia. Note the similarity of leaf shape to *C. aconitifolius* in Figure 1.

Nightshade as a vegetable? We generally tell students that

nightshades are toxic to ingest and point out that the shadier members of an already shady family, the Solanaceae, are documented culprits in poisoning cases like Jimson weed (*Datura stramonium*). Like Jimson weed, most references list black nightshade as toxic.

But *Solanum nigrum* cultivation is being promulgated in Africa where an edible strain is native (Fig. 3). Not only is it edible but black nightshade is more nutritious than the leaves and shoots of cowpea (*Vigna unguiculata*, a legume) with twice the protein content, almost 28 times the amount of vitamin A, and other nutrients higher in the nightshade than the legume. Both the leaves and fruits (berries) are edible after boiling.



Figure 3. Black nightshade at the ECHO research center, Arusha, Tanzania.

How do we explain these conflicting reports on the edibility of black nightshade? The problem is a taxonomic one. Research (helpfully reviewed in Edmonds and Chweya, 1997) shows that *Solanum nigrum sensu lato* is actually a series of related and often morphologically similar species.



Figure 4. *Pyrenes* (?) and seeds of *Telfairia pedata*, oyster nut, native to Tanzania and a promising new crop. Purchased in the Arusha market.

tasty seeds as well as nutritious leaves and shoots. The fruit, apparently a modified pepo or melon-like fruit, is edible when young.

I would like to test our native Cucurbitaceae – *Sicyos angulatus*, bur cucumber and *Echinocystis lobata*, prickly cucumber – for edibility of shoots and seeds. One of the foods mentioned in Shakespeare is hops (*Humulus lupulus*, Cannabaceae). Is the weedy *H. japonicus* likewise edible? The proverbial further research is need. More anon.

In the meantime, USE EXTREME CAUTION WHEN EATING EDIBLE WILD PLANTS. Even a plant which is technically edible could cause an allergic reaction or upset stomach in some people.

Botanical Brainteasers

By Joe Pollard and Janie Marlow

As mentioned in "From the Editor's Desk" on page 2, there has been a gap in production of *Chinquapin*. In our last issue [26(2), summer 2018] the Brainteasers were: (A) *Phoradendron leucarpum*, Mistletoe; (B) *Castanea dentata*, American Chestnut; (C) *Epifagus virginiana*, Beechdrops; (D) *Cuscuta compacta*, Compact Dodder; and (E) *Aureolaria levigata*, Appalachian Oak-leech. In this case, four out of the five plants are parasitic or hemiparasitic plants. American Chestnut (for which the SABS journal *Castanea* is named) is not a parasite, but it is well-known as the host - or perhaps we could say victim - of the Chestnut Blight fungus (*Cryphonectria parasitica*). So the odd one out was (B).

For some reason, this Brainteaser seemed to stump almost everyone, and we only received one entry. That was submitted by Jim Hull, who got most of the species right and solved the puzzle. So congratulations, Jim: you're the winner of course, but more importantly you're the only one to earn any points for that issue.

Because only two issues of *Chinquapin* were published last year, we're going to roll all the 2018 points over into 2019, and keep totaling them up towards a prize at the end of this year. And just as a reminder, playing frequently is a big advantage. Even if you can't get it all right, points are awarded for partial answers.

For our current Brainteaser, five pictures are shown. As usual, provide scientific and common names for the 5 plants, and tell us why one of them is the odd one out. Here's a clue. This "fruity" puzzle involves both plant anatomy and common names. Sometimes they match up, but more often they don't!

Send your answers to joe_pollard@att.net (that's an underscore character between first and last names). Email is preferred, but you can also use snail-mail to my address found elsewhere in this issue.

Color photos will be posted online at <http://sabs.us/publications/chinquapin-issues>.

Photo credits:

A, C, E – JK Marlow;
B – Gill Newberry;
D – Ron Lance.



BOTANICAL EXCURSIONS

Vineology 101

By George Ellison (www.georgeellison.com)

Artwork by Elizabeth Ellison (www.elizabethellisongallery.com)

(reprinted from George Ellison's "Nature Journal" column in the Asheville Citizen-Times, January 31, 2018)

I'm not sure of the exact number of native and naturalized vines that occur in Western North Carolina. Some that readily come to mind are wisteria, the various peas and vetches, poison ivy and Virginia creeper, honeysuckle, virgin's bower, the bittersweets, and trumpet creeper.

The checklist for the trees, shrubs and woody vines in the Great Smokies lists other less-frequently encountered species like peppervine, ampelopsis, leather flower, coral bean, climbing hydrangea, climbing euonymus and moonseed. A ballpark figure for the total number of vines found in this region might be something like 50. Of these perhaps 20 are evergreen.

The climbing methods employed by various vines are both complex and variable. Accordingly, they have been categorized in a number of ways. I think of them in four main categories:

1. "Hook-climbers" include certain roses and other ramblers that attach themselves to a host via prickles, hooks and thorns.
2. "Root-climbers" include English ivy, poison ivy and trumpet vine that produce a profusion of bristly side growths ("adventitious roots") that penetrate cracks and crevices of a host tree or building to hold the vine in place.
3. "Twining-climbers" include honeysuckle, kudzu, wisteria, bittersweet, morning glory, bindweed and Dutchman's pipe, which wind their main stems about their hosts and spiral upward into the light.

One vineologist observed: "A silly argument often arises over vines in this twining group, whether they twist to the right north of the equator and to the left 'down under.' The equator is not involved; neither is the earth's rotation."

Another specialist found that "about 95 percent of the twining-climbers invariably coil to the right (clockwise), and the direction is usually maintained throughout genera and families. But at least 20 species have been reported to twine unreliably in either direction."

Yet another student of "vineology" maintains that coiling counterclockwise is inherently less efficient than the other way round.

- 4a. "Tendrill-climbers" include grapevines, greenbrier and everlasting pea, which send out sensitized vegetative organs from their main stems that "circumnutate" — that is, they sweep back and forth through the air in arcs as they elongate, their motion caused by unequal growth rates on either side of the stem.
- 4b. A variation within the "tendrill-climber" group is provided by vines like Virginia creeper and Boston ivy that produce branching tendrils that form adhesive pads upon contact with the host surface.

One of my favorite "tendrill-climbers" is cross vine (*Bignonia capreolata*), a close relative of the very common trumpet or cow-itch vine (*Campsis radicans*). Crossvine is uncommon in western North Carolina, where it is found at altitudes below about 2,000 feet, growing along streams and roadsides, in moist woods and in thickets.

The time of flowering is usually cited as from mid-April into June but I have seen them in flower from early spring into late fall. The outsides of the blossoms are dull red (almost brown in some instances) to nearly orange. The inside of each blossom is an eye-catching yellow, making them one of our most attractive native vines.

Look for the two lanceolate leaflets that have a tendril arising from between them. A cross-section of the stem reveals vascular bundles formed in the shape of a cross. Hence the common name. In winter light the stems are almost a translucent reddish-mauve in color. If you're looking for a new vine for a garden trellis or other structure that will hold interest year round, be sure and consider crossvine.



Crossvine (watercolor by Elizabeth Ellison)

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Edible Wild Plants *continued from p. 5*

Reference:

Edmonds, J. M. and J. A. Chweya. 1997. Black nightshades. *Solanum nigrum* L. and related species. Promoting the conservation and use of underutilized and neglected crops. 15. Institute of Plant Genetics and Crop Plant Research, Gatersleben/International Plant Genetic Resources Institute, Rome, Italy

[Editor's note: I found this article especially fascinating, because I have a long history with Cnidoscolus. I conducted research on C. texanus in the 1980's in Oklahoma. And now I do field-work in southern Mexico, where C. aconitifolius is a commonly served vegetable, often mixed in with the scrambled eggs! To add yet another edible anecdote to Lytton Musselman's excellent article, I might mention that the seeds of Cnidoscolus are deliciously edible. The fruits are well-armed with stinging hairs, but the seeds can be easily extracted after allowing the capsules to dehisce inside a paper bag. Removing the seed coat is tedious, but the seeds inside taste similar to pecans. That's particularly ironic in light of the fact (mentioned by Lytton) that these plants are in the same family as castor bean, whose seeds contain one of nature's most potent toxins, ricin.]

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